



2011

ASTROFEST

# Astrophotography Exhibition

**Welcome to the Astrofest 2011 Astrophotography exhibition.**

This year's exhibition showcases the exceptional talent and achievements of Western Australian astro-photographers. The 2011 exhibit presents a diverse range of images; from popular and well known deep space images, to the lesser known and more challenging deep space objects, to extreme wide angle views of the night sky.

The astro-photographers featured in the exhibition use a range of equipment and techniques to achieve these remarkable images. Some use sophisticated telescope equipment and techniques, such as multispectral imaging and processing designed to reveal hidden or faint detail, others use simpler approaches such as a camera on a tripod. We also see examples of the same deep space object being photographed by different astro-photographers. This reveals the effect of different equipment and technique on the final image.

The exhibition also features new and innovative imaging techniques, such as the 3D view of deep space objects - see if you can see the 3D effect! Digital "star trail" techniques are also featured.

Exhibition photographs have been selected to illustrate the diversity of Western Australia astrophotography, and to showcase technical achievement and quality, innovative techniques, aesthetic appeal & astronomical content. The inspirational images achieved by the contributors are a credit to the Western Australian astrophotography community.

## The Southern Cross and Pointers

**Roger Groom**

This is a wide field photograph of the Southern Cross (constellation of Crux) and Pointers (alpha and beta Centauri). The natural star colour is a highlight of this image, having been preserved over the long exposure. The Coal Sack is clearly visible beside the Southern Cross. Some red nebulosity is also visible throughout the Milky Way.

A single exposure image taken using 400 ISO slide film and a 25 minute exposure time. Colour and brightness levels adjusted as well as noise reduction.

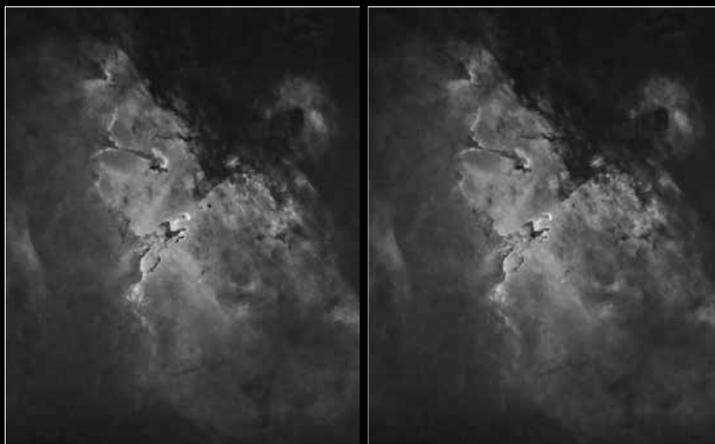


## 3D view of M16 Eagle Nebula, "Our Hydrogen abundant Milky Way"

**Brendan Mitchell**

Messier 16: Located in Serpens at 7000 light years.

This is a 3d look at M 16 or otherwise commonly known as the Eagle nebula. Shot with a narrow band hydrogen alpha filter at a 13 nm and a Canon 40D DSLR on a 254mm Newtonian astrograph. The stars have been removed to allow a more in-depth look at the faint fine structures hidden beneath and processed with Photoshop CS5 to create the 3D effect.



This innovative technique uses image processing to "artificially" remove the stars, so that the nebulosity is easier to see. Compare this image with the M16 Eagle Nebula photograph by Trevor Warner, and Jim Hyndman.

### Can you see the 3D effect?

Viewing hint, stand no nearer than about 1 1/2 metres away. Relax your eyes and let them defocus, slightly cross your eyes, let the images from both eyes drift to form 1 image, focus on that image.

## The Gem and the Mistral

**Brendan Mitchell**

NGC 3293 and 3324: Located in Carina at approximately 8400 and 900 light years respectively.

A lovely emission and reflection nebula coupled with an open cluster (NGC 3293). This combination was taken as a collaborative effort between Grahame Kelaher and Brendan Mitchell. Utilizing Grahame Kelaher's mount and CCD camera with Brendan Mitchell's 254 astrograph and processing.





### **NGC3324 (Gabriela Mistral Nebula)**

**David Ahn**

Taken from a backyard in Beechboro. 5 hours of total exposure using QHY9 CCD camera through Hydrogen Alpha, Sulphur II and Oxygen III narrowband filters. 8" Ritchey Chretien telescope on EQ6 equatorial mount was used. SII, Ha and OIII data were mapped respectively to Red, Green and Blue colour channels (Hubble Palette).

---



### **IC2948 (Lambda Centauri Nebula)**

**David Ahn**

Taken from a backyard in Beechboro. 10 hours of total exposure using QHY9 CCD camera through Hydrogen Alpha, Sulphur II and Oxygen III narrowband filters. 8" Ritchey Chretien telescope on EQ6 equatorial mount was used. SII, Ha and OIII data were mapped respectively to Red, Green and Blue colour channels (Hubble Palette).

---



### **Kandimalal, Wolfe Creek Meteorite Crater star trails**

**John Goldsmith**

Wolfe Creek Meteorite Crater is illuminated by moonlight, in this time exposure star trail photograph. The 180 degree view emphasises the curved perspective of the crater. From the northern rim of the crater, we look south, towards the South Celestial Pole. The crater is also known by its Indigenous name, "Kandimalal". The crater is believed to have formed 300,000 years ago, and is almost 1 km in diameter. Located south of Halls Creek, East Kimberley.

**Approx 30 minute exposure with 100ASA provia film, using a Canon 35mm camera with a 15mm F=2.8 fisheye camera lens. High resolution digital transfer.**

---



### **Moonset, stars and the Pinnacles**

**John Goldsmith**

A striking group of Pinnacles (Nambung National Park) stand in silhouette, with the setting moon, the planet Jupiter and stars.

Canon digital camera (40D) 18-200mm Canon lens at 18mm, F=3.5.

## Horse Head and Flame Tree in Orion

**Chris James**

This is a popular target for astrophotographers, however it is special to astro-photographer Chris James, as it showed that he could do deep sky photography in his backyard which is heavily light polluted by highway lights. By using a band pass filter, light from deep sky objects was passed to the camera, whilst artificial light was blocked from reaching the camera.

This image was amongst Chris James' first images after removing the internal IR filter from his Canon 20D camera.



---

## M 42, the Great Orion nebula, Narrowband

**Jim Hyndman**

Site: Backyard observatory in Forrest field.

Equipment: 10 inch Ritchie Chretien telescope at F7.5

Mount Losmandy G11 Camera:- SBIG ST8300m Guiding Skywatcher ED 80 Piggybacked on the 10 inch RC. Guide camera Orion Starshoot auto guider, using PHD guiding software. Capture 3 lots of 8 exposures of 500 seconds 3 lots of 8 30 second exposures through Ha Sii and Oiii astronomiks filters (The Hubble Palette).

Software Capture , CCDOPS, calibrated aligned and stacked using Images Plus. Combined in Photoshop, where Sii takes the place of the red channel Ha is the green and Oiii occupies the Blue channel. Some adjustments to the curves levels and colour balance also in Photoshop.



---

## M16 Eagle Nebula

**Trevor Warner**

Over 1hr data captured in July 2010 using the GSO 200 mm RC and QHY8 OSC CCD camera Processing in Photoshop for curves, levels, colour, noise etc

Compare this image with the image of the same area, by Brendan Mitchell, and Jim Hyndman.





### **Emu Crossing, Exmouth**

**Rick Tonello**

The enormous Indigenous “Emu” star pattern is made up of the dark areas in the Milky Way. Rick Tonello recorded this remarkable view of the star pattern, and an Emu road sign, from the outskirts of Exmouth in July 2010. The sign appears to point towards the Emu star pattern, in this extreme wide angle view of the southern skies.



### **Vlamingh Head Light House and Milky Way, Exmouth**

**Rick Tonello**

Historic Light House at Vlamingh Head, North West Cape, with the Milky Way. Exmouth July 2010.



### **Large Magellanic Cloud**

**Ben and Vic Levis**

Wide-Field image of the Large Magellanic Cloud and it's very faint surrounding halo. Taken from the dark skies of wheat belt WA using a SBIG Monochrome CCD Camera & a Hasselblad 80mm f2.8 lens. Exposures were taken through LRGB filters with 7 minute sub-frames, totalling 1 hour in exposure.

## Partial Lunar Eclipse

### Ben and Vic Levis

Partial Lunar Eclipse, June 2010. Taken with a Takahashi TSA-102 Refractor & a 1Ds MKII DSLR. 4 second exposure at f8.0, ISO 800.



---

## The Trifid Nebula (M20)

### Graham Kelaher

The Trifid Nebula known as M20 or NGC6514 is located in Sagittarius. Taken using a Losmandy G-11 with a Williams Optics FLT-132, using a QHY-9 CCD Camera. Stacked in CCD Stack and post processed in Photoshop CS4.



---

## Eta Carinae Nebula

### Graham Kelaher

This photo is a mosaic of four 10 min shots combined into a single frame in Photoshop CS4, using a Canon 50D with a Williams Optics FLT-132





### **NGC 3372 Eta Carinae nebula, narrow band**

**Jim Hyndman**

Site: Backyard observatory in Forrest field.  
Equipment: Telescope: 10 inch Ritchie Chretien at F7.5 Mount Losmandy G11 Camera: SBIG ST8300m Guiding Skywatcher ED 80 Piggybacked on the 10 inch RC Guide camera Orion Starshoot auto guider, using PHD guiding software. Capture 3 lots of 10 exposures of 500 seconds through Ha Sii and Oiii astronomiks filters (The Hubble palette) Software Capture, CCDOPS, calibrated aligned and stacked using Images plus. Combined in Photoshop, where Sii takes the place of the red channel Ha is the green and Oiii occupies the Blue channel. Some adjustments to the curves levels and colour balance also in photoshop.

---



### **NGC 7293 "The Helix Nebula" Planetary Nebula**

**Daniel Judge**

4hr stacked exposure in Ha-LRGB with -25c cooled QHY9 monochrome CCD camera. Often referred to as the "Eye of God", it is one of the most closest Planetary Nebulae to the Earth.

---



### **"Astrophotography Night"**

**Daniel Judge**

4hr stacked time lapse. A gathering of Astrophotographers at work overlooking the South Celestial Pole. Image taken with UV/IR Modified Canon 40D DSLR Camera.



### **“Annular solar eclipse”**

**James Athanasou**

Photographed at the precise moment of the maximum point of an annular solar eclipse, the moon is in perfect alignment with the Sun. A thin rim of the Sun remains visible, because the Moon appears slightly smaller than normal. This image illustrates the unexpected beauty and awesome simplicity that astronomical events can display.



### **M16, The Eagle Nebula**

**Jim Hyndman**

Site: Backyard observatory in Forrest field.

Equipment: 10 inch Ritchie Chretien telescope at F7.5.

Camera: SBIG ST8300m. Guiding Skywatcher ED 80 Piggybacked on the 10 inch RC. Guide camera Orion Starshoot auto guider, using PHD guiding software. Capture 3 lots of 10 exposures of 600 seconds through Ha Sii and Oiii astronomiks filters (The Hubble palette). Software Capture, CCDOPS, calibrated aligned and stacked using Images plus.

Combined in Photoshop, where Sii takes the place of the red channel Ha is the green and Oiii occupies the Blue channel. Some adjustments to the curves levels and colour balance also in Photoshop.

**Curator:** John Goldsmith (Image selection: Pete Wheeler, ICRAR)

#### **Exhibition contributors:**

Roger Groom,  
James Athanasou,  
Graham Kelaher,

Brendan Mitchell,  
Jim Hyndman,  
Daniel Judge.

David Ahn,  
Trevor Warner,

Chris James,  
Rick Tonello,

John Goldsmith,  
Ben and Vic Levis,

#### **Associates:**

The World At Night  
Celestial Visions

[www.twanight.org](http://www.twanight.org)

[www.celestialvisions.com.au](http://www.celestialvisions.com.au)



International  
Centre for  
Radio  
Astronomy  
Research

